APPENDIX B

Test Item Planning Sheet B1.39.1316 Rev. A for the 767 Elevator Dual Failure Ground Test

767 ELEVATOR DUAL FAILURE NTSB -GT

Prep _____ Date

Conc _____ Lead Test Operations Engineer Date

App _____ Lead Analysis Engineer Date

App _____ Analysis Supervisor Date

PURPOSE OF TEST

The purpose of this test is to investigate and demonstrate the effects failure conditions on the elevator system in support of the NTSB Egypt Air 990 accident investigation.

RISK ASSESSMENT

All Test Conditions in the TIP Sheet are considered to be LOW Risk.

REFERENCES

(a) Engineering Work Authorization (EWA) V2251-004, "767 Elevator System Dual Failure Ground Test"

CONFIGURATION

The test aircraft is a Model 767-400ER (Airplane VQ001).

Electric driven pumps are satisfactory for this testing.

All static ports set to same air pressure (atmospheric pressure OK if SAFT Van is not used).

SPECIAL TEST REQUIREMENTS

Configure SAFT van to provide Pitot and Static pressures to Captain's, First Officer's, Auxiliary 1, Auxiliary 2 systems, and Alternate Static Systems.

-OR-

Alternative means of varying pitot system pressure to control elevator feel pressure.

DATA REQUIRED

Data Tapes/FDR - ON and RECORDING prior to test start

Manual Data - Test Director: Record events and correlate with IRIG time.

Analysis: Record events and correlate with IRIG time, and monitor ADAMS for condition acceptability.

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TEST CONDITIONS

PHASE I

B1.39.1316 - 767 SINGLE PCU DISCONNECTED -NTSB

Initial Setup

- ☐ LEFT PCU on the RIGHT side disconnected
- ☐ Stabilizer set to approximately 3 units
- ☐ Hydraulic power L, C1, C2, R ACMPs ON

Notes

- ❶ Airspeed and/or trim to be adjusted to achieve the required feel pressure. Stabilizer not to go less than 2 units of trim.

B1.39.1316 - 767 SINGLE PCU DISCONNECTED -NTSB

Risk	Cond No	Elev Feel Press (psi)	Airspeed (KCAS)	Impact Press (psf)	Operation
L	.001	BASE	0	0	Sweep the PILOT column from neutral to full forward, to neutral and then full aft
L	.002	BASE	0	0	Sweep the F/O column from neutral to full forward, to neutral and then full aft.
L	.003	770❶	420	~165	Sweep the PILOT column from neutral to full forward, to neutral and then full aft.
L	.004	770❶	420	~165	Sweep the F/O column from neutral to full forward, to neutral and then full aft.

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B1.39.1316 - 767 DUAL PCU DISCONNECTED -NTSB

Initial Setup

- ☐ LEFT PCU on the RIGHT side disconnected
- ☐ CENTER PCU on the RIGHT side disconnected
- ☐ Stabilizer set to approximately 3 units
- ☐ Hydraulic power L, C1, C2, R ACMPs ON

Notes

❶ Airspeed and/or trim to be adjusted to achieve the required feel pressure. Stabilizer not to go less than 2 units of trim.

B1.39.1316 - 767 DUAL PCU DISCONNECTED -NTSB

Risk	Cond No	Elev Feel Press (psi)	Airspeed (KCAS)	Impact Press (psf)	Operation
L	.005	BASE	0	0	Sweep the PILOT column from neutral to full forward, to neutral and then full aft
L	.006	BASE	0	0	Sweep the F/O column from neutral to full forward, to neutral and then full aft.
L	.007	770❶	420	~165	Sweep the PILOT column from neutral to full forward, to neutral and then full aft.
L	.008	770❶	420	~165	Sweep the F/O column from neutral to full forward, to neutral and then full aft.

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PHASE II

B1.39.1316 - 767 ELEV SINGLE PCU CTRL VALVE JAM -NTSB

Initial Setup

- ☐ MIDDLE PCU on the RIGHT side ~~disconnected~~ Jam (supplied by the right hydraulic system) with modified PCU per FCV2251004-01-1 ~~15~~
- ☐ Stabilizer set to approximately 3 units
- ☐ Hydraulic power L, C1, C2, R ACMPs ON
- ☐ Tail SOV CLOSED (OFF) A

Notes

❶ Airspeed and/or trim to be adjusted to achieve the required feel pressure. Stabilizer not to go less than 2 units of trim.

B1.39.1316 - 767 ELEV SINGLE PCU CTRL VALVE JAM -NTSB

Risk	Cond No	Elev Feel Press (psi)	Airspeed (KCAS)	Impact Press (psf)	Operation	
L	.200	BASE	0	0	Prior to initiating the sweep, OPEN the tail SOV. Slowly sweep the PILOT column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A
L	.201	BASE	0	0	Slowly sweep the F/O column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A
L	.202	770❶	420	~165	Prior to initiating the sweep, OPEN the tail SOV. Slowly sweep the PILOT column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A
L	.203	770❶	420	~165	Slowly sweep the F/O column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A

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B1.39.1316 - 767 ELEV W/ONE LINKAGE DISCONNECT & ONE PCU CTRL VALVE JAM -NTSB

Initial Setup

- ☐ INBOARD PCU on the RIGHT side (supplied by the center hydraulic system) disconnected.
- ☐ MIDDLE PCU replaced on the right side(supplied by the right hydraulic system) with modified PCU per FCV2251004-01-1.
- ☐ Stabilizer set to approximately 3 units
- ☐ Hydraulic power L, C1, C2, R ACMPs ON
- ☐ Tail SOV CLOSED (OFF) A

Notes

❶ Airspeed and/or trim to be adjusted to achieve the required feel pressure. Stabilizer not to go less than 2 units of trim.

B1.39.1316 - 767 ELEV W/ONE LINKAGE DISCONNECT & ONE PCU CTRL VALVE JAM -NTSB

Risk	Cond No	Elev Feel Press (psi)	Airspeed (KCAS)	Impact Press (psf)	Operation	
L	.204	BASE	0	0	Prior to initiating the sweep, OPEN the tail SOV. Slowly sweep the PILOT column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A
L	.205	BASE	0	0	Slowly sweep the F/O column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A
L	.206	770❶	420	~165	Prior to initiating the sweep, OPEN the tail SOV. Slowly sweep the PILOT column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A
L	.207	770❶	420	~165	Slowly sweep the F/O column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A

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B1.39.1316 - 767 ELEV DUAL PCU CTRL VALVE JAM -NTSB

Initial Setup

- ☐ INBOARD PCU on the RIGHT side (supplied by the center hydraulic system) replaced with modified PCU per FC V2251004-01-1.
- ☐ MIDDLE PCU on the RIGHT side elevator (supplied by the right hydraulic system) replaced with modified PCU per FC V2251004-01-1.
- ☐ Stabilizer set to approximately 3 units.
- ☐ Hydraulic power L, C1, C2, R ACMPs ON
- ☐ Tail SOV CLOSED A

Notes

❶ Airspeed and/or trim to be adjusted to achieve the required feel pressure. Stabilizer not to go less than 2 units of trim.

B1.39.1316 - 767 ELEV DUAL PCU CTRL VALVE JAM -NTSB

Risk	Cond No	Elev Feel Press (psi)	Airspeed (KCAS)	Impact Press (psf)	Operation	
L	.208	BASE	0	0	Prior to initiating the sweep, OPEN the tail SOV. Slowly sweep the PILOT column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A
L	.209	BASE	0	0	Slowly sweep the F/O column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A
L	.210	770❶	420	~165	Prior to initiating the sweep, OPEN the tail SOV. Slowly sweep the PILOT column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A
L	.211	770❶	420	~165	Slowly sweep the F/O column from neutral to full forward, to neutral and then full aft while visually inspecting input pogo.	A

RISK ALLEVIATION

None